Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

VOLUME VIII.] NEW-YORK, APRIL 30, 1853. [NUMBER 33.

THE
Scientific American,
PUBLISHED WEEKLY
At 128 Fulton street, N. Y., (Sun Buildings)
BY MUNN & COMPANY.

Hotchkiss & Co., Boston.
Dexter & Bro., New York City.
Stokes & Bro., Philadelphia.
G.J. LeCount & Strong, San Francisco, Cal
Cooke, Kinney & Co. ditto.
B. Dawson, Montreal, C. E.
M. Boullemet, Mobile, Ala.
E. W. Wiley, New Orleans, La.
E. G. Fuller, Halifax, N. S.
M. M. Gardissal & Co., Paris.

Responsible Agents may also be found in all the principal cities and towns in the United States.

Terms—$2 a-year—$1 in advance and the remainder in 6 months.

USEFUL RECEIPTS.

Lithographic Ink.

Lithographic ink is composed of tallow 2 ounces; virgin wax 2 ounces; shell lac 2 ounces; common soap 2 ounces; lamp black ½ an ounce.

These materials are prepared in an iron saucepan with a cover. The wax and tallow are first put in and heated till they ignite; whilst they are burning the soap must be thrown in in small pieces one at a time, taking care that the first is melted before a second is put in. When all the soap is melted, the ingredients are allowed to continue burning till they are reduced one-third in volume. The shell lac is now added, and as soon as it is melted the flame must be extinguished. It is often necessary in the course of the operation to extinguish the flame and take the saucepan from the fire, to prevent the contents from boiling over; but if after the process above described any parts are not completely melted, they must be dissolved over the fire without being again ignited.

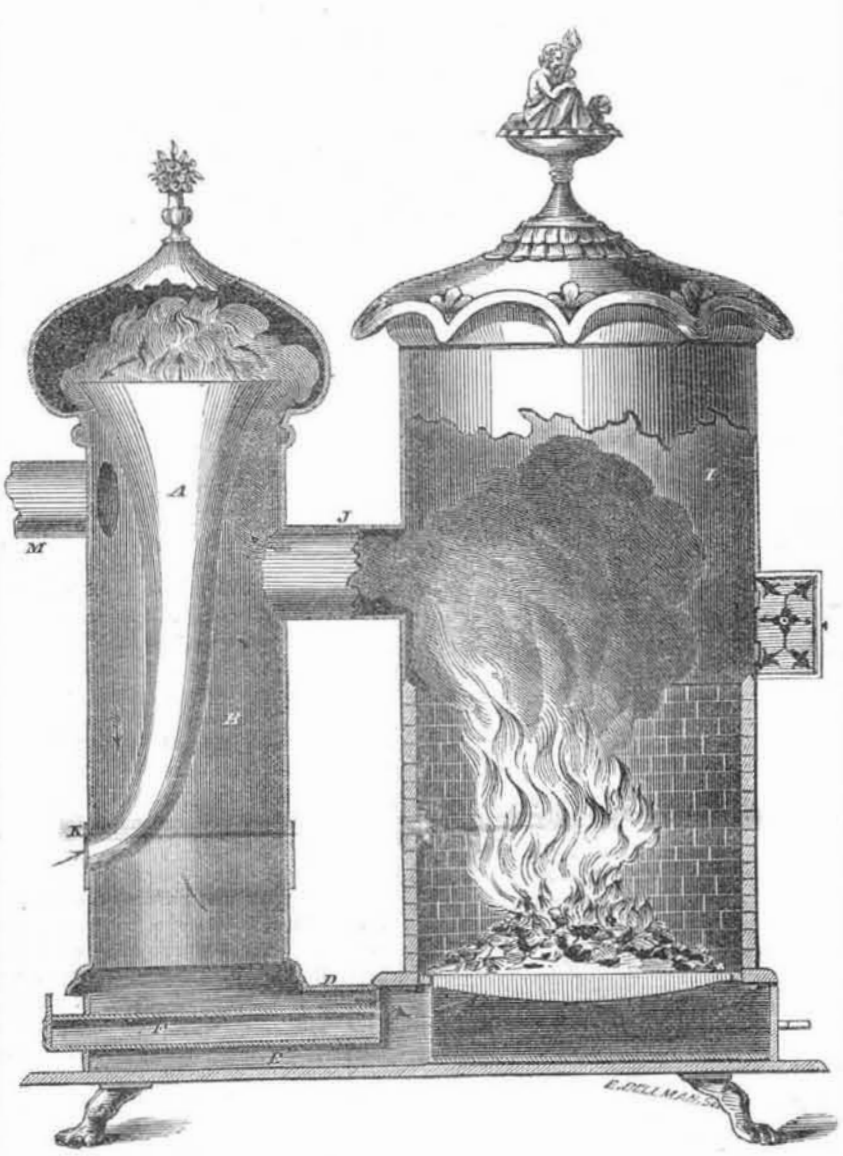
The black is now to be added, having previously mixed it with thick varnish, made by heating linseed oil till it will ignite from the flame of a piece of lighted paper, and allowing it to burn till reduced to one-half. When it is completely dissolved, the whole mass should be poured out on a marble slab, and a heavy weight laid upon it to render its texture fine.

Grafting Wax.

This is made of one pint linseed oil, six pounds rosin, one pound beeswax, the whole melted together over a slow fire.

Atmospheric Reversing Draught Furnace.

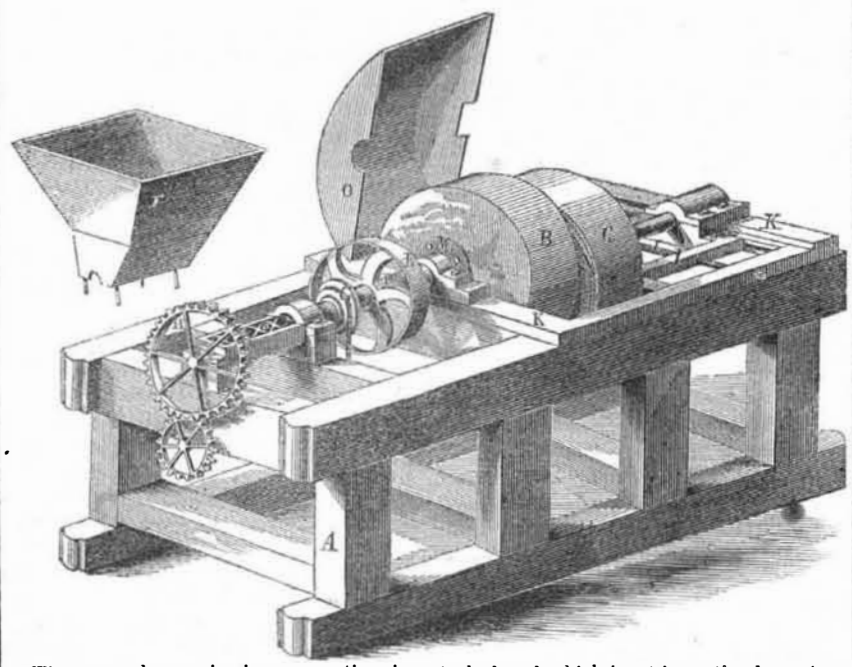
The accompanying engraving represents a vertical longitudinal section of Wm. Ennis & R. W. Fenwick's Atmospheric Reversing Draft Furnace, for which a patent was granted to the inventor, Mr. Ennis, of the firm of Keyser & Co., furnace manufacturers, this city (N. Y.) on the 29th of last month (March 1853.) The fire is shown in the furnace, I. The grate is supplied with fresh air through a back tube or channel, F, above the ash pit or pan, E. A pipe or passage, J, connects the fire chamber or stove, I, with the radiator chamber, B, in which is placed an inverted hollow cone of cast-iron, A, to deflect the fine solid particles of coal that are sometimes carried off from the fire when fresh coals are put on, and also to absorb and retain a great amount of heat, and give it out by radiation so as to economize heat; also to make a portion of air return and feed the fire along with any carbonic oxide that may escape, and thus economize fuel. The pipe, F, can be closed to regulate the feed of fresh air. The atmosphere is admitted through the hollow cone at K, and passes up as shown by the arrows, then out by pipe, M. The large part of the cone being placed near the pipe, J, compresses the smoke into a smaller space before it reaches the top, where it expands and creates a partial vacuum, thus combining the element of an artificial draft without the employment of any mechanical force to do so. This furnace, therefore, must always draw well. If applied to burn bituminous coal, from which much volatile matter escapes, the supply of fresh air by the hollow cone, if any flame passes up, will saturate the gas with air so as to render it combustible, and burn, and thus this stove will be a smoke consuming one, well adapted for all places where they burn bituminous coal. The arrows show the



reversing draft of heated air to support combustion when F is closed; a good arrangement.

More information about rights and furnaces may be obtained by letter addressed to Wm. Ennis & R. W. Fenwick, at the furnace manufactory of Messrs. Keyser & Co., 398 Broadway, N. Y.

IMPROVED GRINDING MILL.



The annexed engraving is a perspective view of an improved grinding mill, invented by Listman & Lawmaster, Syracuse, N. Y.

A is the main frame; B is the driving stone hung on shaft, D, to which pulley, E, is attached, and which is set in motion by a steam engine or water wheel; C is the other stone driven by the one, B, the space between being filled with grain, which keeps them in contact. The feed is supplied through shaft D; there is another pulley underneath (unseen,) similar to the upper; the upper gives motion to the lower one, which has a pinion on its spindle that gears into the wheel, H, and moves it; this wheel turns the conveyer, *a*. The two pulleys are constructed so as to increase or diminish the motion of the wheel, H, for regulating the supply to the conveyer. Both stones run one way, and not in opposite directions, and by changing the conveyer to one with an opposite thread, both can be run backwards with the same effect without any alteration of the dress. The centres of the two stones are not exactly opposite to one another; this causes them to cut instead of crushing the grain; I is a shipper for moving the stone, C, to the one side or the other, more or less distant. The shipper slides on a cast-iron frame, K K, and is moved when required by turning the screw, L. This shipper is put into the frame before it is bolted together. There is a screw (not shown) to set the stone; by it, provision is made to keep the two stones together; M is an iron flange secured on shaft, D, to which the stone, B, is fastened; the stone, C, is balanced on its shaft with a similar flange; N shows part of the dressing of the stone; O is the cover or lid for covering the stones. The grain after being discharged from the stones can be taken out from the end of the frame by a conveyer placed on the bottom of the box, and driven by the shaft wheels, or it may be let down into a lower story and carried up by an elevator. The hopper, F, is shown apart from the mill, but is placed above the hollow shaft or conveyer, *a*, over which it is placed to receive the grain when the mill is at work. This mill is well adapted for grinding wheat for farina. It is also well adapted for grinding paints, saleratus, &c., and it works with a great economy of power. This mill is employed with great success by Messrs. Listman & Lawmaster, it being capable, they state, of grinding a greater variety of substances, in a superior manner, than any grinding mill in common use.

More information may be obtained by letter addressed to these gentlemen at Syracuse.

Naples Yellow.

This fine color, used in oil-painting and for porcelain and enamel, is prepared in Italy by a secret process. Dr. Ure gives the following recipe:—12 parts of metallic antimony are to be calcined in a reverberatory furnace with 8 parts of red lead and 4 parts of oxide of zinc; the mixed oxides are to be fused, and the mass then triturated and elutriated in o a fine powder. Many of the purposes for which Naples yellow was formerly applied, are now supplied by chromate of lead.

Death of the Vice President.

William Rufus King, our elected Vice President, died at his residence in Alabama, after a long illness, on the 18th inst. He went to Cuba in search of health after he was elected, and a bill was passed by Congress for him to take the oaths of his office in Cuba. He sensibly declined to do so; he felt that his days were few, and that if he recovered he could be installed into office at the seat of government. He was an upright, able man, and for forty years in public life.

We have seen it stated in a number of our exchanges that W. J. McAlpine, the present worthy and able State Engineer, N. Y., is about to resign and become chief engineer of the New York and Erie Railroad. It is also reported that George Cole, C. E., is to succeed Mr. McAlpine.

A survey is about to be made for a railroad from Hoboken to the central parts of New York State, in order to open up railway communications between some of the southern New York counties and the sea board.